

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Tomomi Meguro et al.**

Art Unit: **1792**

Application Number: **10/587,592**

Examiner: **Brian K. TALBOT**

Filed: **July 28, 2006**

Confirmation Number: **2418**

For: **PROCESS FOR PRODUCING TRANSPARENT CONDUCTIVE FILM AND
PROCESS FOR PRODUCING TANDEM THIN-FILM PHOTELECTRIC
CONVERTER**

Attorney Docket Number: **81844.0051**

Customer Number: **26021**

DECLARATION OF SUSUMU FUKUDA PURSUANT TO 37 C.F.R. §1.132

Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Sir:

1. I, Susumu FUKUDA, am a citizen of Japan and reside at 1-18-6, Sakurano-cho, Ohtsu-shi, Shiga, 520-0026 Japan. I obtained a master of Engineering Science degree in Electrical Engineering from the Graduate School of Engineering Science, Osaka University.

2. Since April 1994 to the present time, I have been employed by KANEKA CORPORATION, and have worked as a researcher in the field of solar cells. At the present time, I am a manager of an R&D team, Device Development Group, Solar Energy Division of KANEKA CORPORATION.

3. I am one of the inventors of the above-identified application and am familiar with the subject matter thereof. I have personal knowledge of the facts stated herein except for those facts which are based on information and belief.

4. All statements made herein based on my own knowledge are true and all statements made on information and belief are believed to be true.

5. I have read the Office Action dated June 19, 2009 for the above-identified application as well as all references cited therein and I am familiar with the subject matter thereof.

6. Based on my review of the materials as mentioned in paragraph 5 above, and my knowledge as one skilled in the art, I conclude that there is a great technical difference between Claim 1, as currently amended, and the Yamada reference (US 5,545,443) cited in the Office Action, as explained in detail hereafter:

6.1 First, according to Claim 1, an oxidizing agent is mixed and thereby diluted with hydrogen gas in advance of reaction with an organozinc compound (namely, before an introduction to a deposition chamber).

6.2 When the oxidizing agent and hydrogen gas are mixed in advance of reacting with the organozinc compound, the reaction efficiency of the organozinc compound with the oxidizing agent and decomposition efficiency of the organozinc compound are enhanced. This is because, as noted in second line from bottom of page 6 of the specification, hydrogen gas shows higher thermal conductivity than argon gas and therefore the oxidizing agent is preheated more efficiently and uniformly when the dilution gas is hydrogen.

6.3 Due to the enhanced efficiency of the reaction and decomposition of the organozinc compound, the deposition efficiency (i.e., deposition rate) as well as the uniformity of the transparent conductive film is improved in the present invention.

6.4 In contrast, Fig. 1 of the Yamada reference demonstrates that B₂H₆ diluted with hydrogen is mixed with DEZn (organozinc compound) in advance of its introduction into a deposition chamber, but H₂O (oxidizing agent) is not diluted (or mixed) with hydrogen in advance. Therefore, in contrast to the present invention, the oxidizing agent is diluted with argon gas in the Yamada reference.

6.5 In conclusion, even if combined with the knowledge generally available in the art at the time of filing, the Yamada reference does not teach or suggest that a mixed gas in which an oxidizing agent is diluted with a hydrogen gas is introduced into a deposition chamber. Moreover, the effects of improved uniformity in the transparent conductive film and enhanced deposition efficiency of the present invention are unexpected in view of the Yamada reference.

6.6 Wherefore, based on the disclosures of Yamada either alone, or in combination with the disclosures of the other cited references, there is no basis whereby a skilled artisan could derive the aspects of the claimed invention.

Application No.: 10/587,592
Art Unit: 1792

Declaration under 37 CFR §1.132
Attorney Docket No.:81844.0051

7. I declare under penalty of perjury under the laws the United States that the foregoing is true and correct. I acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both and may jeopardize the validity of the application or any patent issuing thereon.

Dated this 10th day of September, 2009 at Shiga, Japan

Susumu FUKUDA
Susumu FUKUDA